

Lawrence Livermore National Laboratory

Dawndev Regression Testing

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Dawndev reconfigured for regression testing

- Changes driven by WCI code teams build and test needs
 - Long history of IBM C++ compiler issues with our codes
 - Need to find/fix any issues without using uP
 - Need to isolate code changes that caused compiler issues
- Reconfigured general access resources on dawndev
 - Anyone with dawndev account and valid bank may access
 - pdebug reduced to 512 nodes / 32 I/O nodes
 - Default HTC partition “htc” remains at 16 nodes / 1 I/O node
 - The “dawndev” name now rotates between dawndev1 & 2
- New WCI dawndev resources (access list controlled)
 - pwci created with 432 nodes / 27 I/O nodes (max 27 jobs)
 - Use “-t 60”, etc. to exceed 30 minute default (12 hour max)
 - Testing HTC partition “wcihtc” has 64 nodes/ 4 I/O nodes
 - Dawndev3 & 4 login nodes now dedicated build resources

New HTC-enabled MPI functionality

- Modified IBM MPI available that supports serial HTC jobs
 - Leveraged IBM open-source MPI and MPICH2 base
 - Uses generic MPICH2 functionality for serial HTC jobs
 - Uses switch and IBM optimizations for compute nodes
 - Designed to Segfault when more changes needed
 - Let us know if segfaults on HTC partition in MPI
- Only need to change link line to use new MPI
 - Static link: -L/usr/local/tools/HTC_enabled_mpi
 - Shared: -Wl,-rpath,/usr/local/tools/HTC_enabled_mpi
- Same executable can be used with mpirun and submit now
 - MPI_Init automatically detects mode to use

Optional environment variables and examples

- Debug env vars provided (but not necessary normal runs)
 - Adding “-env LLNL_VERBOSE_HTC_MPI=1” prints:
LLNL: Using HTC-enabled MPI ver 1.00 8Dec2010 by John Gyllenhaal
 - “-env LLNL_FORCE_HTC_MPI=1” forces HTC mode
 - Uses HTC mode even with mpirun –n 1 (for debugging)
- Example compile and run in HTC pool “wcihtc”

```
mpixlcxx_r -g -o test3 test3.c -L/usr/local/tools/HTC_enabled_mpi  
submit -pool wcihtc -raise ./test3 100
```
- Example using “autosubmit” functionality with “wcihtc”

```
setenv HTC_SUBMIT_POOL wcihtc  
../test3 100
```